

WHAT IS CLAIMED IS:

1. An electrical feedthru apparatus comprising:
a core comprising an electrical insulator, the core having an external surface;
an electrically conductive transmission line disposed across a portion of the external surface; and
an insulating mold disposed over the electrically conductive transmission line and the external surface.
2. The electrical feedthru apparatus of claim 1, further comprising a channel formed in the external surface, wherein the electrically conductive transmission line is disposed in the channel and bonded thereto.
3. The electrical feedthru apparatus of claim 1, wherein the core comprises an axial centerline, and wherein at least a portion of the electrically conductive transmission line is not parallel to the axial centerline.
4. The electrical feedthru apparatus of claim 1, wherein the core is generally cylindrical.
5. The electrical feedthru apparatus of claim 1, wherein the mold is shaped to fit into a standard swage lock.
6. The electrical feedthru apparatus of claim 5, wherein the mold comprises a wedge.
7. The electrical feedthru apparatus of claim 6, wherein the mold comprises a shoulder for bearing against a tightening fastener.

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8. The electrical feedthru apparatus of claim 1, wherein the mold comprises PEEK (polyetheretherketone).

9. The electrical feedthru apparatus of claim 1, wherein the core comprises injection molded plastic.

10. The electrical feedthru apparatus of claim 1, further comprising a microchip adhered to the core, wherein the microchip is wire-bonded to the electrically conductive transmission line.

11. The electrical feedthru apparatus of claim 10, wherein the microchip comprises a sensor chip.

12. The electrical feedthru apparatus of claim 11, wherein the core, the electrically conductive transmission line, the mold, and the sensor chip are disposed in a MEMS sensor package.

13. The electrical feedthru apparatus of claim 1, further comprising a plurality of electrically conductive transmission lines spaced around the external surface.

14. The electrical feedthru apparatus of claim 13, further comprising a sensor chip adhered to the core, wherein the sensor chip is wire-bonded to two or more of the plurality of conductive transmission lines.

15. The electrical feedthru apparatus of claim 1, wherein the electrically conductive transmission line is connected to a standard electrical connector.

16. The electrical feedthru apparatus of claim 1, wherein the electrically conductive transmission line is substantially flush with the external surface.

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17. The electrical feedthru apparatus of claim 1, wherein the core comprises a rod having a first diameter and a shoulder wherein the rod comprises a second diameter larger than the first diameter.

18. The electrical feedthru apparatus of claim 1, wherein the electrically conductive transmission line comprises copper.

19. A MEMS package comprising:
a fitting having an internal cavity;
an electrical feedthru disposed in the internal cavity, the electrical feedthru comprising an insulating core having one or more electrical traces extending along the outside of the insulating core.

20. The MEMS package of claim 19, wherein the insulating core comprises one or more channels disposed therein, wherein each of the one or more electrical traces is bonded to the insulating core within the one or more channels.

21. The MEMS package of claim 20, wherein the one or more electrical traces is substantially flush with the insulating core.

22. The MEMS package of claim 19, wherein the electrical feedthru further comprises a polymer mold disposed over the insulating core and the electrical traces for sealing between two distinct environments.

23. The MEMS package of claim 22, wherein the polymer mold is sized to fit in a standard swage lock.

24. The MEMS package of claim 19, further comprising a sensor chip adhered to a first end of the electrical feedthru, wherein the sensor chip is wire-bonded to the one or more electrical traces.

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25. The MEMS package of claim 24, further comprising a bellows containing a secondary fluid disposed within a first end of the internal cavity, the secondary fluid in direct fluid communication with the sensor chip.

26. The MEMS package of claim 19, further comprising a standard electrical connector connected to a second end of the electrical feedthru.

27. The MEMS package of claim 19, wherein the insulating core comprises an axial centerline, and wherein at least one of the electrical traces is not parallel to the axial centerline.

28. A method of fabricating an electrical feedthru comprising:
providing an electrically insulating core having a channel formed therein;
adding a conductive material to the channel to create an electrical transmission line;
and
machining the core, the transmission line, or both the core and the transmission line, such that the electrical transmission line is flush with the core.

29. The method of claim 28, further comprising adding a insulating mold over the core and the electrical transmission line.

30. The method of claim 29, wherein the mold comprises a wedge shaped to fit into a standard swage lock.

31. The method of claim 30, further comprising adhering a microchip to an end of the core and wire bonding the microchip to the electrical transmission line.

32. The method of claim 30, wherein the microchip is a sensor chip.

33. The method of claim 28, wherein providing the core further comprises injection molding a polymer into a geometric shape.

34. The method of claim 28, further comprising forming a plurality of spaced channels in the core and adding a conductive material to each channel.

35. The method of claim 28, wherein adding a conductive material further comprises electroplating the core with copper, and wherein machining further comprises removing the copper from the core at locations other than the channel.

36. A method of electrically interfacing between two distinct environments comprising:

inserting an electrical feedthru comprising one or more electrical traces traversing an exterior of the electrical feedthru between the two distinct environments.

37. The method of claim 36, further comprising mechanically sealing between the two distinct environments with the electrical feedthru.

38. The method of claim 37, wherein sealing comprises the use of no O-rings.

39. The method of claim 37, further comprising adding a polymer over-mold to the electrical feedthru to form a mechanical seal.

40. The method of claim 36, wherein the two distinct environments comprise a high pressure environment in a MEMS package and a low pressure environment in the MEMS package.

41. The method of claim 40, further comprising directly connecting the electrical feedthru to a standard electrical connector in the low pressure environment, and directly connecting the electrical feedthru to a MEMS sensor chip in the high pressure environment.

42. An electrical feedthru comprising:
a disk comprising an electrical insulator, the disk having an external surface; and
a plurality of electrically conductive transmission lines disposed across a portion of
the external surface.

43. The electrical feedthru apparatus of claim 42, further comprising a plurality of
channels disposed in the external surface, wherein each of the plurality of electrically
conductive transmission lines is disposed in one of the plurality of channels and is bonded
thereto.

44. The electrical feedthru apparatus of claim 42, wherein the disk comprises a
central axis and a tapered first end; and wherein the plurality of electrically conductive
transmission lines is not parallel to the central axis.

45. The electrical feedthru apparatus of claim 42, further comprising a wedge-
shaped insulating over-mold.

46. An apparatus comprising:
a micro-electro-mechanical-system, the micro-electro-mechanical-system comprising
an electrical feedthru disposed therein, the electrical feedthru comprising a core having one or
more external traces traversing two distinct environments.